

NOTES, ABSTRACTS, AND REVIEWS.

THE INTERNATIONAL METEOROLOGICAL CONFERENCE
AT UTRECHT.

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Since the first steps were taken in 1853 toward international cooperation in meteorology, the International Meteorological Organization has had a varied career, its meetings sometimes taking the form of congresses of plenipotentiaries appointed by Governments and convened through diplomatic channels, and sometimes of conferences of directors of meteorological services and observatories meeting without official aid.

Until 1919 the organization had no written constitution, but at the first conference held after the war, at Paris in 1919, "*règlement de l'organisation météorologique internationale*" was formally adopted. According to these rules the International Meteorological Organization comprises: (1) Conferences of directors; (2) the international meteorological committee; (3) commissions. The conferences are to meet every six years and to consist of "all heads of Réseaux of stations in each country and the directors of meteorological observatories which are official and independent of one another," to whom are added a number of directors of private institutes and representatives of meteorological societies.

The international meteorological committee is appointed by each conference to act until the meeting of the next conference, and is to all intents and purposes the executive body of the conference, for it carries out the decisions of the past conference and prepares the business of the next. Each member of the committee must belong to a separate country and must be the director of an independent meteorological establishment. Commissions are appointed by the committee "to advance the study of special questions," and members are appointed simply from the point of view of their personal qualifications to assist the work of the commission. In this way the assistance of men of science and private gentlemen unassociated with official services is made available and freely used.

When the conference met in Paris in 1919 the political state of the world was so abnormal that invitations could not be sent to some countries, and many other countries were not able to be represented. It was, therefore, felt that another conference should be called as soon as conditions became more favorable and all countries without exception could meet in council. When the international meteorological committee met in London in 1921 it was considered that such a time was rapidly approaching, and the invitation of Professor van Everdingen, director of the De Bilt Observatory, Holland, for a meeting of the conference in Utrecht during 1923 was accepted. The return to normal political relationship has not been so rapid as was expected, and the troubles of the early months of 1923 made it look at one time as if the conference would have to be postponed, but it was finally decided not to cancel the invitations which had been dispatched in December, 1922, and this course has been justified by the successful meetings of the conference held in Utrecht on September 7-14.

The meetings of the conference were preceded and followed by meetings of several commissions. The commissions for agricultural meteorology, solar radiation, terrestrial magnetism, and atmospheric electricity, weather telegraphy and maritime meteorology were held before the conference (September 3-6), and the commission for

the study of clouds and the commission for the upper air met after the conference (September 14). For the meetings of the commissions and conference 50 members were present, from Argentina (1), Austria (1), Belgium (2), Brazil (1), Denmark (1), Spain (2), Finland (1), France (5), Great Britain (5), India (1), Japan (4), Norway (3), Holland (11), Poland (2), Portugal (1), Russia (2), Sweden (3), Switzerland (2), Czechoslovakia (2).

At the first meeting of the conference on Friday, September 7, Sir Napier Shaw (Great Britain) was elected president, and Doctor Hesselberg (Norway) secretary-general. After the president's address had been delivered and certain business matters disposed of, it was decided to remit all reports and resolutions submitted to the conference to five subcommissions for preliminary consideration and the preparation of suitable recommendations. This distribution occupied the greater part of the meeting on Friday afternoon, when the conference adjourned until the following Tuesday to give the commissions time to prepare their reports. When the conference reassembled on Tuesday it worked very hard for three days considering the sixty-odd resolutions submitted for its approval.

The great development of the use of wireless telegraphy in the dissemination of meteorological data has necessitated very intricate cooperation between meteorological services all over the world, especially in Europe. As the information is distributed broadcast for the use of any one who cares to receive it, it is highly desirable that the messages issued in the various countries should be of the same form and in the same code. As the result of untiring work of the weather telegraphy commission under the guidance of its energetic president, Lieutenant Colonel Gold, the New International Code is now used by 22 meteorological services. The arrangement of the times of issue of the wireless messages to prevent interference is also a difficult matter and necessitates close cooperation. It is not surprising, therefore, that 20 resolutions were submitted to the conference by the weather telegraphy commission. These dealt with such questions as the wording and interpretation of the code, times of issue, description of the stations, reduction of pressure to sea level, additional observations, and the establishment of subcommissions to watch the working of the code and to study proposals for improvements. A new departure was the agreement to add a new group of figures to certain messages, to allow experiments to be made of a new method of forecasting, based on a close study of cloud forms, which has recently been developed by the French Meteorological Office. It was very gratifying that it was not found necessary to alter the International Code, for it is extremely difficult to carry through a change when so many services are concerned, and it would jeopardize all the progress made toward the use of a uniform message if changes were made by some and not by others.

The resolutions submitted by the commission for maritime meteorology were less numerous, but they contained references to several remarkable advances toward the extension of synoptic methods to ships at sea. The commission recommended the adoption of a code to be used for wireless weather messages sent out from ships. The code consists of eight groups of figures, the first four of which are called universal groups and will be the same for all ships in all parts of the world; the second four, called national groups, will be different

according to the office which organizes the issue, and will be designed to meet the different needs of the various services. This proposal, which was accepted by the conference, marks a great advance in international cooperation in all parts of the world. The conference also recorded its appreciation of the work performed on board the *Jacques Cartier*. This is a French ship which has made experiments during voyages between America and Europe of collecting meteorological information by wireless telegraphy from ships and shore, preparing a meteorological chart of the Atlantic, and then broadcasting forecasts for the use of ships. The *Jacques Cartier* carries an officer of the mercantile marine trained in the French Meteorological Office, who is assisted by a clerk lent by that office. Further developments along these lines are to be expected.

The power of the method of "correlation" when applied to meteorological data is now generally recognized by meteorologists. The success of Dr. G. T. Walker, who employs this method in his forecasts of the Indian monsoon, is well known. Such work, however, fails unless homogeneous data extending over a long period are available. Professor Exner, of Vienna, brought this matter before the conference, and a resolution was adopted expressing the opinion that the publication of long and homogeneous data from a number of stations at distances of about 500 or 1,000 kilometers from one another would be of great value. Not content with expressing this opinion, the conference asked Dr. G. T. Walker to supervise the working of the resolution so far as Asia is concerned, and similarly Prof. F. M. Exner for Europe, Mr. H. H. Clayton for America, and Dr. G. C. Simpson for Africa, Australia, and the ocean generally.

The conference was unable to solve the problem submitted to it by the commission for the upper air regarding the international publication of upper-air data. That these data should be collected and published in a uniform manner is highly desirable, but all the efforts of Sir Napier Shaw, the president of the commission, to find a possible way of doing so have been unavailing. Such an undertaking would be expensive and would require financial aid from all countries concerned. In present circumstances it is not surprising that such aid is not forthcoming, and all the conference could do was to make suggestions for meeting temporarily the pressing need for the rapid circulation of results obtained by means of sounding balloons. The data obtained by the use of airplanes and pilot balloons are too numerous to be handled internationally at present, and the conference therefore recommended that each country should publish its own data.

Many resolutions dealing with agricultural meteorology, terrestrial magnetism, atmospheric electricity, solar radiation, and the upper atmosphere were adopted but space does not allow of further details here.

One of the most important questions dealt with by the conference was its relationship to the International Union of Geodesy and Geophysics. The great growth of the official weather services of all civilized countries has provided so many questions of administration and organization for international consideration, that this side of the activities of the International Meteorological Organization has swamped the scientific side. At recent meetings of the conference and committee there has been no time for scientific discussion, and therefore little to attract the members of the organization other than those connected with the great official meteorological services. A resolution was therefore considered

to alter the rules in such a way as to limit membership of the conference to directors of meteorological services. There was practically no opposition, and the rule governing the membership of the conference now reads as follows:

"The officers of the committee shall invite to the conference all heads of Réseaux of stations in each country which are official (d'état) and independent of one another."

It was generally understood that this would remove from the work of the organization all questions of pure science, and that the science of meteorology would be considered only in so far as it is applied to the needs of the meteorological services. Practically, this is no change in the work of the organization, but it makes a clear distinction between the sphere of the International Union of Geodesy and Geophysics and the sphere of the International Meteorological Organization. There should now be no material overlap between the work of the union, which considers meteorology from the scientific side, and the work of the organization, which "studies only those questions which are of interest to all national meteorological services and which necessitate the utilization of their own network of stations."

At the last meeting of the conference, when the new international meteorological committee had been elected and Sir Napier Shaw was about to terminate his long connection with international meteorology, Colonel Delcambre, the head of the French Meteorological Office, rose and in a short eloquent speech expressed the regard every member of the conference left for Sir Napier Shaw and the debt which meteorology owed to him. He then proposed that Sir Napier should be elected an honorary member of the international meteorological committee, an honor never before bestowed. The proposal was accepted with prolonged applause and much feeling, for all felt that this was a happy way of marking their appreciation of the great work done by Sir Napier Shaw for international meteorology.

The newly elected committee met the next day and appointed Professor van Everdingen president, and Doctor Hesselberg secretary. The office of vice president was left vacant for the present.

The general feeling at the end of the meetings, frequently expressed, was that good work had been done and much progress made. Good feeling between members from all countries was very marked throughout.

THE EAST-WEST OSCILLATION OF THE ICELANDIC MINIMUM.

By C. E. P. BROOKS, M. Sc.

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The author has made an examination of 528 pressure charts especially drawn for the study and bases his conclusions upon the evidence of these charts. The charts were examined for cases of an extreme westerly position of the Icelandic minimum, say over Davis Strait and an extreme easterly position in which the minimum was centered over or to the east of Iceland. A scale of marking was adopted to show the position of the minimum for each month. As the work developed the month as a time unit was discarded in favor of overlapping means of 4 months. Plotting the scale values thus obtained the author found evidence of 43 complete oscillations with an average length of 12.1 months. The number of intervals between successive easterly and successive